

CLAIMS

1. An information processing apparatus comprising:

a code reception unit adapted to receive a
5 personal identification code input by a user;

a random number generation unit adapted to generate a random number;

10 a random number encryption unit adapted to encrypt the random number generated by said random number generation unit, by using the personal identification code or a key based on the personal identification code as an encryption key;

a code conversion unit adapted to convert the received personal identification code by using a
15 predetermined function; and

a print data encryption unit adapted to encrypt print data by using the random number as an encryption key.

2. An information processing apparatus according to Claim 1, wherein said code conversion
20 unit converts the personal identification code by using a one-way function.

3. An information processing apparatus according to Claim 2, wherein said code conversion
25 unit generates a hash value of the personal identification code.

4. An information processing apparatus

according to Claim 1, further comprising a transmission unit adapted to transmit the encrypted random number, the converted personal identification code and the encrypted print data.

- 5 5. A print control apparatus comprising:
 - a reception unit adapted to receive an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;
- 10 a code reception unit adapted to receive a second personal identification code input by a user;
 - a code conversion unit adapted to convert the received second personal identification code by using a predetermined function;
- 15 a judgment unit adapted to judge whether or not the converted first personal identification code is the same as the converted second personal identification code;
 - a random number decryption unit adapted to, in a case where the converted first and second personal identification codes are the same, decrypt the encrypted random number by using the second personal identification code or a key based on the second personal identification code as a decryption key; and
- 20 a print data decryption unit adapted to, in the case where the converted first and second personal identification codes are the same, decrypt the
- 25

encrypted print data by using the decrypted random number as a decryption key.

6. A print control apparatus according to Claim 5, wherein said code conversion unit converts the
5 second personal identification code by using a one-way function.

7. A print control apparatus according to Claim 6, wherein said code conversion unit generates a hash value of the second personal identification code.

10 8. A print control apparatus according to Claim 5, further comprising a print processing unit adapted to execute a print process of the decrypted print data.

15 9. A print control system which includes an information processing apparatus and a print control apparatus, wherein

said information processing apparatus comprises:

20 a first code reception unit adapted to receive a first personal identification code input by a user;

a random number generation unit adapted to generate a random number;

25 a random number encryption unit adapted to encrypt the generated random number by using the first personal identification code or a key based on the first personal identification code as an

encryption key;

a first code conversion unit adapted to convert the received first personal identification code by using a predetermined function;

5 a print data encryption unit adapted to encrypt print data by using the random number as an encryption key; and

10 a transmission unit adapted to transmit the encrypted random number, the converted first personal identification code and the encrypted print data to said print control apparatus, and

said print control apparatus comprises:

15 a reception unit adapted to receive the encrypted random number, the converted first personal identification code and the encrypted print data from said information processing apparatus;

a second code reception unit adapted to receive a second personal identification code input by the user;

20 a second code conversion unit adapted to convert the received second personal identification code by using a predetermined function;

25 a judgment unit adapted to judge whether or not the first personal identification code converted by said first code conversion unit is the same as the second personal identification code converted by said second code conversion unit;

a random number decryption unit adapted to,
in a case where said judgment unit judges that the
converted first and second personal identification
codes are the same, decrypt the encrypted random
5 number by using the second personal identification
code or a key based on the second personal
identification code as a decryption key; and
a print data decryption unit adapted to,
in the case where said judgment unit judges that the
10 converted first and second personal identification
codes are the same, decrypt the encrypted print data
by using the decrypted random number as a decryption
key.

10. A print control system according to Claim 9,
15 wherein said print control apparatus further
comprises a print processing unit adapted to execute
a print process of the decrypted print data.

11. An information processing method comprising
the steps of:
20 receiving a personal identification code input
by a user;
generating a random number;
encrypting the generated random number by using
the personal identification code or a key based on
25 the personal identification code as an encryption
key;
converting the personal identification code by

using a predetermined function; and
encrypting print data by using the random
number as an encryption key.

12. An information processing method according
5 to Claim 11, further comprising the step of
transmitting the encrypted random number, the
converted personal identification code and the
encrypted print data.

13. A print control method comprising the steps
10 of:

receiving an encrypted random number, a first
personal identification code subjected to
predetermined conversion, and encrypted print data;

15 receiving a second personal identification code
input by a user;

converting the received second personal
identification code by using a predetermined
function;

judging whether or not the converted first
20 personal identification code is the same as the
converted second personal identification code;

in a case where it is judged that the converted
first and second personal identification codes are
the same, decrypting the encrypted random number by
25 using the second personal identification code or a
key based on the second personal identification code
as a decryption key; and

in the case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted print data by using the decrypted random number as a
5 decryption key.

14. A print control method according to Claim 13, further comprising the step of executing a print process of the decrypted print data.

15. A computer program for causing a computer
10 to execute an information processing method,
comprising:

a code reception module for receiving a personal identification code input by a user;

15 a random number generation module for generating a random number;

a random number encryption module for encrypting the generated random number by using the personal identification code or a key based on the personal identification code as an encryption key;

20 a code conversion module for converting the received personal identification code by using a predetermined function; and

25 a print data encryption module for encrypting print data by using the random number as an encryption key.

16. A computer program for causing a computer to execute a print control method, comprising:

a reception module for receiving an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;

5 a code reception module for receiving a second personal identification code input by a user;

a code conversion module for converting the received second personal identification code by using a predetermined function;

10 a judgment module for judging whether or not the converted first personal identification code is the same as the converted second personal identification code;

a random number decryption module for, in a
15 case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted random number by using the second personal identification code or a key based on the second personal identification code as a
20 decryption key; and

a print data decryption module for, in the case where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted print data by using the
25 decrypted random number as a decryption key.

17. A computer-readable storage medium which stores a computer program for causing a computer to

execute an information processing method, said computer program comprising:

a code reception module for receiving a personal identification code input by a user;

5 a random number generation module for generating a random number;

a random number encryption module for encrypting the generated random number by using the personal identification code or a key based on the
10 personal identification code as an encryption key;

a code conversion module for converting the received personal identification code by using a predetermined function; and

15 a print data encryption module for encrypting print data by using the random number as an encryption key.

18. A computer-readable storage medium which stores a computer program for causing a computer to execute a print control method, said computer program
20 comprising:

a reception module for receiving an encrypted random number, a first personal identification code subjected to predetermined conversion, and encrypted print data;

25 a code reception module for receiving a second personal identification code input by a user;

a code conversion module for converting the

received second personal identification code by using a predetermined function;

a judgment module for judging whether or not the converted first personal identification code is
5 the same as the converted second personal identification code;

a random number decryption module for, in a case where it is judged that the converted first and second personal identification codes are the same,
10 decrypting the encrypted random number by using the second personal identification code or a key based on the second personal identification code as a decryption key; and

a print data decryption module for, in the case
15 where it is judged that the converted first and second personal identification codes are the same, decrypting the encrypted print data by using the decrypted random number as a decryption key.